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(54)名 稱：燈串結構

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(57)申請專利範圍：

1. 一種燈串結構，其係於外殼內組裝有(電路基板、固定柱及燈泡)等結構，並於外殼外側設有接頭，可以組裝軟管並加以串接，同時配合控制單元及設置於電路基板上之(位移單元)而達到燈串之功效者，其特徵在於：

電路基板之兩端各設有一燈座可用以組裝燈泡，並於兩側設有固定孔；

固定柱上設有與電路基板之固定孔相配合之固定孔，並於兩端設有固定環，可以用以固定電線組；

外殼內設有滑槽，可以用以嵌設電路基板，並於外殼之兩端分別設有接頭，可

讓電線阻穿過，其接頭外可以由一固定環來組裝一軟管，其可以保護電線阻，同時可依需要而不斷相串接者。

2. 如申請專利範圍第1項所述之燈串結構，其中外殼可以為兩半互相以螺紋相組合而成者，亦可以由上下兩半扣合或是其他方式所組合而成者。

圖示簡單說明：

圖一條本創作之外觀圖。

圖二係本創作之元件分解圖。

圖三係本創作之控制迴路配置圖。

圖四係本創作之實施例圖。

圖五係習用者之控制迴路配置圖。

15.

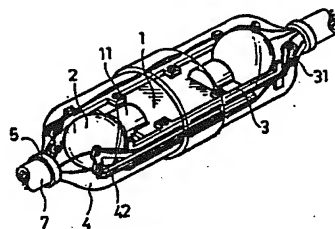


FIG. 1

(2)

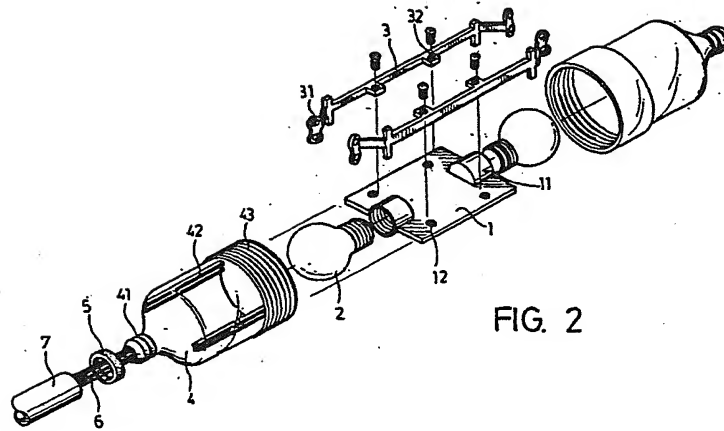


FIG. 2

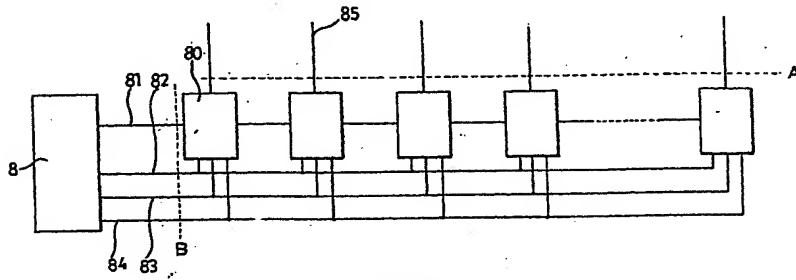


FIG. 3

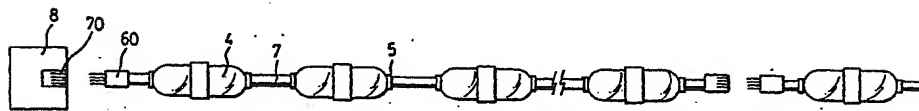


FIG. 4

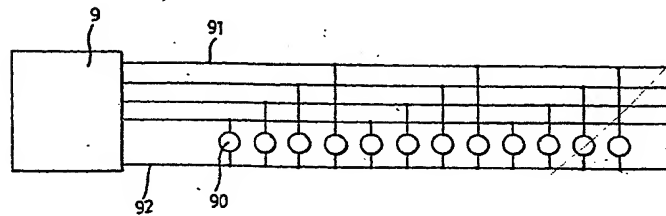


FIG. 5

(I) Brief Description of the Drawing

Fig. 1 is a schematic view of the appearance of this creation.

Fig. 2 is a schematic view of exploded view of this creation.

Fig. 3 is a schematic view of control-loop arrangement of this creation.

Fig. 4 is a schematic view of an embodiment of this creation.

Fig. 5 is a schematic view of a conventional control-loop arrangement .

(II) Symbolic List of Major Components

1	circuit board	11	lamp holder
12	fixing hole	32	fixing hole
2	light bulb	31	fixing ring
3	fix bar	4	housing
42	sliding groove	41	connector
43	thread		
5	retaining ring	6	wire set
60	plug	70	socket
7	hose	8	control unit
80	displacement unit		
81	displacement data loop		
82	displacement clock loop		
83	power source loop		
84	ground line		
85	output loop		
9	light running controller	90	light bulb
91	loop	92	ground
(A)	Conventional light loop connection position		
(B)	loop connection position of this creation		

(III) Detailed Description of Preferred Embodiment:

Referring to Fig. 1, an appearance view of this creation is shown. As seen from the figure, this creation has a housing (4) which receives a circuit board (1), light bulbs (2) and fix bars (3). A retaining ring (5) is used respectively at both ends to assemble the housing (4) with a hose (7), so as to constitute one unit of this creation.

The structure of each component can be seen in the exploded view of Fig. 2. A circuit board (1) is provided in each unit, and a lamp holder (11) is provided at each end of the circuit board (1) for mating engagement with a light bulb (2). Four fixing holes (12) are provided at both sides of the circuit board (1) for the combination with the fix bars (3). Two fix bars (3) are provided in each unit, which are bent at both ends and each has two fixing holes (32) for the fixing of the circuit board (1). A fixing ring (31) is integrally provided at each end of the fix bars (3), which is used to fix the wire set (6) inserted from the connector (41) of the housing (4) so as to prevent wire set (6) from aging or deteriorating due to the heat generated by the light bulb (2).

The housing (4) of each unit consist of two halves, each end of the both ends has a connector (41) the insertion of the wire set (6). The mutually mating thread (43) are provided on the other end of respective half of the housing (4) so that the two halves can be united together by threading of the mutually opposite threads (43). A sliding groove (42) is provided in one of the two halves for the insertion of the circuit board (1). Additionally, a retaining ring (5) is used to connect the connector (41) with a hose (7) so that the wire set is prevented from exposing to the outside and is convenient for the serial connection between units.

In Figure 3, a control-loop arrangement is shown. From the Figure, the difference between the loop arrangement of this creation and that of the conventional control-loop arrangement. The loop arrangement of this creation uses a control unit (8) and several separated displacement units (80). One control unit (8) is coupled with several displacement units (80), and connect in series with a displacement data loop (81), a displacement clock loop (82), a power source loop (83) and a ground line (84). In addition, an output loop (85) is drawn out from each of the displacement unit (80), so as to accomplish this creation. During the design stage of this creation, the displacement unit (80) is installed in each circuit board (1) of each unit, in other words, only four loops (that is, the connect lines of the control unit (8) and the displacement unit (80)) are needed to achieve one set loop, as shown in the position of the dash line of the loop connection position (B) in the

figure. The control unit and the displacement unit in the conventional design are assembled in the light running controller (9), as shown in the dashed line of the loop connection position (A) of the conventional light running string in Figure 3. This conventional design needs a large number of loops for serial connection. This creation uses the flip-flop circuit for transmission in serial connection instead of using output line to connect light bulb in parallel. Hence, the quantity of the loop can be increase arbitrarily, while the connection line of the control unit need not to be increased. As shown in Fig. 3, only four loops are required at the loop connection position (B) of this creation, and six loops(power source, ground line, right displacement data, left displacement data, displacement clock and left-right displacement selection)are required in the left- right shift mode.

Fig.4 shows an embodiment of this creation. As seen in Figure 4, each unit can be connected serially with the other unit. The plug (60) at one end the serial connected string is inserted into the socket (70). A segment of hose (7) is inserted between the housings (4) of neighborhood units and retained by the retaining ring (5), such that the string can be winded into a smaller volume during the delivery, or it can be bent arbitrarily into suitable shape or form when it is assembled to use.. This is very useful in practical use. In addition, there is no such problem of blocking by bus line during assembly at site, so this makes the assembly become very convenient. Moreover, this creation can emit light in 360 degrees, so this will make it's application range become wider. Besides, each unit can be made to be independent so as to be used individually. Therefore, it can use as roadblock light or for other decoration purpose. From the viewpoint of a worker, since units are connected with each other by a hose, the wire set can be hide within the hose so as to prevent the wire set from deterioration or erosion due to the exposure of sunshine or rain shower. Furthermore, better appearance of the lamp string is achieved by the addition of the hose. Moreover, each unit can be disassembled easily so that the maintenance and repair becomes convenient.

What is claimed is:

1. A lamp string structure, each unit comprising a housing which receives a circuit board, fix bars and light bulbs inside, serial connection between the units being accomplished by a connector provided at each end of each unit and a segment of hose inserted between the housings of neighborhood units and the function of a lamp string being achieved by the lamp string in corporation with a control unit and a displacement unit provided on the circuit board,

Characterized in that each unit includes:

a lamp holder provided at each end of the circuit board for mating engagement with a light bulb, and fixing holes being provided at both side of the circuit board,

two fix bars, provided in each unit for the fixing of circuit board, having fixing holes corresponding to the fixing holes of the circuit board, and a retaining ring being provided at each end of each unit for the fixing of wire set,

sliding grooves, being provided within the housing for the insertion of the circuit board, a connector being provided at both ends of the housing through which the wire set pass through, the retaining ring being used to connect the connector with a hose so as to protect the wire set, and being convenient for the arbitrary serial connection between units.

2. The lamp string structure according to claim 1, wherein the housing consists of two halves which is in mating engegement with each other either by threading, or by buckling of the upper half and the lower half, or by the other way.